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10/766,488	01/29/2004	Shin Ishibashi	31238-200393	1533

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EXAMINER

SANGHAVI, HEMANG

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 10/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/766,488

Applicant(s)

ISHIBASHI ET AL.

Examiner

Hemang Sanghavi

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 61-65, 69-85, 89-168 and 170-185 is/are pending in the application.
- 4a) Of the above claim(s) 122-127, 158-162 and 182-185 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 61-65, 69-85, 89-121, 128-157, 163-168 and 170-181 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 3/1/06

- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. 10010006 2006 04/26
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Terminal Disclaimer

The terminal disclaimer filed on March 17, 2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application Serial No. 09/571,334 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Information Disclosure Statement

The prior art documents submitted by Applicant(s) in the Information Disclosure Statement(s) filed on 03/17/2006 have all been considered and made of record (note the attached copy of form(s) PTO-1449).

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 61-65, 69-85, 89-121, 128-157, 163-168, and 170-181, drawn to an optical module, classified in class 385, subclass 92.
- II. Claims 122-127, 158-162, and 182-185, drawn to a module cap, classified in class 385, subclass 139.

The inventions are distinct, each from the other because of the following reasons:

Inventions I are II related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as capping transreceiver modules. See MPEP § 806.05(d).

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

The added new claims are directed to an invention which is separate and distinct from the invention defined by the original patent claims. The original patent claims (Group I) are held elected and claims 122-127, 158-162, and 182-185 are held constructively non-elected and withdrawn from consideration. If the original claims are found allowable, and a division application has been filed for the non-elected claims, further action in this application will be suspended pending resolution of the divisional application. See 37 CFR 1.176(b).

The action on merits of claims 61-65, 69-85, 89-121, 128-157, and 163-168, and 170-181 is as follows:

Specification

The amendment filed 10/1/1999 in RE 36,886 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The limitation of "a single frame" is not supported by the original disclosure.

The amendment changes the original meaning of the term "frame" in the specification. The amended limitation "a frame comprising a first frame part and a

Art Unit: 2874

second frame part" changes the meaning of the frame in the original disclosure disclosing limitation "first and second frames".

The application fails to disclose a frame (a single frame) to hold the circuit board. See Fig. 2 and lines 26-27 of column 6; and Figs. 5, 9-11, 13A, 13B, and 14. As to Fig. 15, the PD and LD modules 40 and 50 are temporarily physically or mechanically fixed to a lower frame 20, however this embodiment fails to disclose the circuit board fixed to the lower frame. Thus, the disclosure requires first and second frames to hold the circuit board, the laser diode module and the photo diode module and applicant's amendment to a single frame is not supported by the specification.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 61-65, 106-121, 139-157, 163-168, and 170-181 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The amendment changes the original meaning of the term "frame" in the specification. The amended limitation "a frame comprising a first frame part and a

Art Unit: 2874

second frame part" changes the meaning of the frame in the original disclosure disclosing limitation "first and second frames".

In line 13 of claim 61, phrase "a frame to hold said circuit board" is not supported by the specification. The embodiments disclosed in the application require first and second frames to hold the circuit board. The application fails to disclose a frame (a single frame) to hold the circuit board. See Fig. 2 and lines 26-27 of column 6; and Figs. 5, 9-11, 13A, 13B, and 14. As to Fig. 15, the PD and LD modules 40 and 50 are temporarily physically or mechanically fixed to a lower frame 20, however this embodiment fails to disclose the circuit board fixed to the lower frame. Thus, the disclosure requires first and second frames to hold the circuit board, the laser diode module and the photo diode module and applicant's claim to a single frame is not supported by the specification.

In claims 62, 63, 64, and 106, the phrase "a frame to hold said circuit board" is not supported by the specification.

In claims 139, 163, 166, 170, 171, 172, 176, 178, and 180, the phrase "the frame at least partially encases the circuit board, the laser diode module and the photo diode module" is not supported by the specification. As discussed above there is no support in the specification to provide a single frame partially encasing the circuit board, the laser diode module and the photo diode module.

Claims 65, 107-121, 140-157, 164-165, 167-168, 173-175, 177, 179, and 181 are necessarily rejected since these claims directly or indirectly depend upon the rejected base claims.

Reissue Applications

The reissue oath/declaration filed with this application is defective because it fails to identify at least one error which is relied upon to support the reissue application. See 37 CFR 1.175(a)(1) and MPEP § 1414. The error identified in the declaration does not support the reissue application as it introduces the new matter in the original disclosure (see objection and rejection above).

Claims 61-65, 69-85, 89-121, 128-157, 163-168 and 170-181 are rejected as being based upon a defective reissue declaration under 35 U.S.C. 251 as set forth above. See 37 CFR 1.175.

The nature of the defect(s) in the declaration is set forth in the discussion above in this Office action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

Art Unit: 2874

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 61, 63, 69-79, and 89-99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Block et al (US 5,039,194) and Schaffer et al (US 5,243,678).

Block et al discloses an optical fiber link card comprising:

connectors (102, 103) for connection with a mother board;

laser diode electric signal conversion means (130, 131);

a laser diode module (120) for converting the laser diode electric signal to a laser diode optical signal,

a photo diode module (122) for converting a photo diode optical signal to a photo diode electric signal,

photo diode electric signal conversion means for converting the photo diode electric signal to photo diode data (lines 20-32 of column 6);

a circuit board (101) for carrying thereon the connector, the laser diode electric signal conversion means, the laser diode module and the photo diode module; and first and second frames or a housing (180, 181) for holding the circuit board, the laser diode module and the photo diode module,

wherein the connectors (102, 103) are construed as a surface mounting type connectors.

Block et al fails to disclose a serial electrical to serial optical conversion means for the laser diode and a serial optical to serial electrical means for the photo diode.

However, in lines 25-40 of column 1, Block et al states that such serial-to-serial conversion means are well known in the art and are commercially available. The transmission of data from the mother board to the circuit board can be provided via only two alternatives of a serial or a parallel transmission. It should be noted that the circuit board disclosed in Block et al can only be connect to a parallel transmission lines of the mother board and the parallel to serial conversion means provided to efficiently communicate with the laser diode module. The link card of Block et al could be connected to serial transmission lines of the computer if serial-to-serial conversion means are provided on the card.

Since serial-to-serial conversion means are well known and commercially available and teachings from Block et al, the ordinary artisan would have found it to be obvious at the time of the invention to replace a parallel-to-serial conversion means of Block et al with serial-to-serial conversion means for the purpose of advantageously connecting the link card to the serial connectors of the computer.

Block et al further fails to disclose a module cap to be inserted into light outlet and inlet opening defined by the first and second frames along a light inlet and outlet direction.

Schaffer et al, in a related art, discloses a receptacle cover (cap) that closes optical devices inlet and outlet openings. Schaffer et al further states that it is well known in the art to attach the cover to receptacle to prevent the entry dust and debris during the assembly process. See lines 20-56 of column 1. Schaffer et al further states that the cover can be modified to cooperate with any convention cavity for seating an

Art Unit: 2874

optical device (such as a photodiode, etc.) in a facing relation to the plug. See lines 5-12 of column 2.

From collective teachings of Schaffer et al and well known techniques, the ordinary artisan would have found it obvious at the time of the invention to provide a cap or shielding means for protecting photo diode modules and laser diode modules from dust and debris and reducing coupling loss that could be imparted by dust and debris.

As to claim 63, 75, and 95, Block et al fails to disclose the data transmission rate of 1000 Mbits/s or more for laser diode optical signal and photodiode optical signal.

Even the data link card of Block et al has a data transmission rate in excess of 200 Mbits/s, it is capable of transmission at a rate of 1000 Mbits/s providing additional power and components. Such high transmission rate is required in long distance optical communication systems.

The ordinary artisan would have found it to be obvious at the time of the invention to utilize the laser diode module and the photo diode module capable of transmitting at a rate of 1000 Mbits/s or more for the purpose of utilizing the optical fiber link card in long distant optical communication systems.

As to claims 70-71, 77-79, 90-93, and 97-99, Schaffer et al discloses projection parts.

As to claims 63, 74, 76, 94 and 96, Block et al fails to disclose indication part on the frames.

Such labeling of the products as desired is well known in the art and provides ease to the ordinary skilled artisan in identifying the parts of the product.

From available well known techniques, the ordinary artisan would have found it to be obvious at the time of the invention to provide indication parts in the frame for the purpose of advantageously providing ease in identifying the parts of the module.

Claim 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Block et al (US 5,039,194).

Block et al discloses an optical fiber link card comprising:
connectors (102, 103) for connection with a mother board;
laser diode electric signal conversion means (130, 131);
a laser diode module (120) for converting the laser diode electric signal to a laser diode optical signal,
a photo diode module (122) for converting a photo diode optical signal to a photo diode electric signal,
photo diode electric signal conversion means for converting the photo diode electric signal to photo diode data (lines 20-32 of column 6);
a circuit board (101) for carrying thereon the connector, the laser diode electric signal conversion means, the laser diode module and the photo diode module; and
first and second frames (180, 181) for holding the circuit board, the laser diode module and the photo diode module,
wherein the connectors (102, 103) are construed as a surface mounting type connectors.

Block et al fails to disclose a serial electrical to serial optical conversion means for the laser diode and a serial optical to serial electrical means for the photo diode.

Art Unit: 2874

However, in lines 25-40 of column 1, Block et al states that such serial-to-serial conversion means are well known in the art and are commercially available. The transmission of data from the mother board to the circuit board can be provided via only two alternatives of a serial or a parallel transmission. It should be noted that the circuit board disclosed in Block et al can only be connect to a parallel transmission lines of the mother board and the parallel to serial conversion means provided to efficiently communicate with the laser diode module. The link card of Block et al could be connected to serial transmission lines of the computer if serial-to-serial conversion means are provided on the card.

Since serial-to-serial conversion means are well known and commercially available and teachings from Block et al, the ordinary artisan would have found it to be obvious at the time of the invention to replace a parallel-to-serial conversion means of Block et al with serial-to-serial conversion means for the purpose of advantageously connecting the link card to the serial connectors of the computer.

Block et al fails to disclose the data transmission rate of 1000 Mbits/s or more for laser diode optical signal and photodiode optical signal.

Even the data link card of Block et al has a data transmission rate in excess of 200 Mbits/s, it is capable of transmission at a rate of 1000 Mbits/s providing additional power and components. Such high transmission rate is required in long distance optical communication systems.

The ordinary artisan would have found it to be obvious at the time of the invention to utilize the laser diode module and the photo diode module capable of

Art Unit: 2874

transmitting at a rate of 1000 Mbits/s or more for the purpose of utilizing the optical fiber link card in long distant optical communication systems.

Block et al fails to disclose indication part on the frames.

Such labeling of the products as desired is well known in the art and provides ease to the ordinary skilled artisan in identifying the parts of the product.

From available well known techniques, the ordinary artisan would have found it to be obvious at the time of the invention to provide indication parts in the frame for the purpose of advantageously providing ease in identifying the parts of the module.

Claims 64-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Block et al (US 5,039,194) and Sinbashi et al (JP 63-16496).

Block et al discloses an optical fiber link card comprising:

connectors (102, 103) for connection with a mother board;

laser diode electric signal conversion means (130, 131);

a laser diode module (120) for converting the laser diode electric signal to a laser diode optical signal,

a photo diode module (122) for converting a photo diode optical signal to a photo diode electric signal,

photo diode electric signal conversion means for converting the photo diode electric signal to photo diode data (lines 20-32 of column 6);

a circuit board (101) for carrying thereon the connector, the laser diode electric signal conversion means, the laser diode module and the photo diode module; and

Art Unit: 2874

first and second frames (180, 181) for holding the circuit board, the laser diode module and the photo diode module,

wherein the connectors (102, 103) are construed as a surface mounting type connectors.

Block et al fails to disclose a serial electrical to serial optical conversion means for the laser diode and a serial optical to serial electrical means for the photo diode. However, in lines 25-40 of column 1, Block et al states that such serial-to-serial conversion means are well known in the art and are commercially available. The transmission of data from the mother board to the circuit board can be provided via only two alternatives of a serial or a parallel transmission. It should be noted that the circuit board disclosed in Block et al can only be connect to a parallel transmission lines of the mother board and the parallel to serial conversion means provided to efficiently communicate with the laser diode module. The link card of Block et al could be connected to serial transmission lines of the computer if serial-to-serial conversion means are provided on the card.

Since serial-to-serial conversion means are well known and commercially available and teachings from Block et al, the ordinary artisan would have found it to be obvious at the time of the invention to replace a parallel-to-serial conversion means of Block et al with serial-to-serial conversion means for the purpose of advantageously connecting the link card to the serial connectors of the computer.

Block et al fails to disclose the data transmission rate of 1000 Mbits/s or more for laser diode optical signal and photodiode optical signal.

Even the data link card of Block et al has a data transmission rate in excess of 200 Mbits/s, it is capable of transmission at a rate of 1000 Mbits/s providing additional power and components. Such high transmission rate is required in long distance optical communication systems.

The ordinary artisan would have found it to be obvious at the time of the invention to utilize the laser diode module and the photo diode module capable of transmitting at a rate of 1000 Mbits/s or more for the purpose of utilizing the optical fiber link card in long distant optical communication systems.

Block et al fails to disclose indication part on the frames.

Such labeling of the products as desired is well known in the art and provides ease to the ordinary skilled artisan in identifying the parts of the product.

From available well known techniques, the ordinary artisan would have found it to be obvious at the time of the invention to provide indication parts in the frame for the purpose of advantageously providing ease in identifying the parts of the module.

Block et al, as discussed above, fails to disclose supporting means including a metallic plate.

However, such supporting means is well known in the art and discloses by Sinbashi et al. Sinbashi et al discloses supporting means that provide a high shielding effect and economic suitable for mass production (see page 6 of English Translation provided by applicant).

Thus, from teachings of Sinbashi et al and well known techniques, the ordinary artisan would have found it to be obvious at the time of the invention to provide

Art Unit: 2874

supporting means as claimed in Block et al for the purpose of providing a high shielding effect and mass production of the modules.

Claims 80-81 and 100-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Block et al (US 5,039,194) and Sinbashi et al (JP 63-16496).

Block et al discloses an optical fiber link card comprising:

connectors (102, 103) for connection with a mother board;

laser diode electric signal conversion means (130, 131);

a laser diode module (120) for converting the laser diode electric signal to a laser diode optical signal,

a photo diode module (122) for converting a photo diode optical signal to a photo diode electric signal,

photo diode electric signal conversion means for converting the photo diode electric signal to photo diode data (lines 20-32 of column 6);

a circuit board (101) for carrying thereon the connector, the laser diode electric signal conversion means, the laser diode module and the photo diode module; and first and second frames (180, 181) for holding the circuit board, the laser diode module and the photo diode module,

wherein the connectors (102, 103) are construed as a surface mounting type connectors.

Block et al fails to disclose a serial electrical to serial optical conversion means for the laser diode and a serial optical to serial electrical means for the photo diode.

However, in lines 25-40 of column 1, Block et al states that such serial-to-serial

Art Unit: 2874

conversion means are well known in the art and are commercially available. The transmission of data from the mother board to the circuit board can be provided via only two alternatives of a serial or a parallel transmission. It should be noted that the circuit board disclosed in Block et al can only be connect to a parallel transmission lines of the mother board and the parallel to serial conversion means provided to efficiently communicate with the laser diode module. The link card of Block et al could be connected to serial transmission lines of the computer if serial-to-serial conversion means are provided on the card.

Since serial-to-serial conversion means are well known and commercially available and teachings from Block et al, the ordinary artisan would have found it to be obvious at the time of the invention to replace a parallel-to-serial conversion means of Block et al with serial-to-serial conversion means for the purpose of advantageously connecting the link card to the serial connectors of the computer.

Block et al, as discussed above, fails to disclose supporting means including a metallic plate.

However, such supporting means is well known in the art and discloses by Sinbashi et al. Sinbashi et al discloses supporting means that provide a high shielding effect and economic suitable for mass production (see page 6 of English Translation provided by applicant).

Thus, from teachings of Sinbashi et al and well known techniques, the ordinary artisan would have found it to be obvious at the time of the invention to provide

Art Unit: 2874

supporting means as claimed in Block et al for the purpose of providing a high shielding effect and mass production of the modules.

Claims 82-85 and 102-105 are rejected under 35 U.S.C. 103(a) as being unpatentable over Block et al (US 5,039,194), Schaffer et al (US 5,243,678) and Sinbashi et al (JP 63-16496).

Block et al discloses an optical fiber link card comprising:
connectors (102, 103) for connection with a mother board;
laser diode electric signal conversion means (130, 131);
a laser diode module (120) for converting the laser diode electric signal to a laser diode optical signal,
a photo diode module (122) for converting a photo diode optical signal to a photo diode electric signal,
photo diode electric signal conversion means for converting the photo diode electric signal to photo diode data (lines 20-32 of column 6);
a circuit board (101) for carrying thereon the connector, the laser diode electric signal conversion means, the laser diode module and the photo diode module; and
first and second frames or a housing (180, 181) for holding the circuit board, the laser diode module and the photo diode module,
wherein the connectors (102, 103) are construed as a surface mounting type connectors.

Block et al fails to disclose a serial electrical to serial optical conversion means for the laser diode and a serial optical to serial electrical means for the photo diode.

Art Unit: 2874

However, in lines 25-40 of column 1, Block et al states that such serial-to-serial conversion means are well known in the art and are commercially available. The transmission of data from the mother board to the circuit board can be provided via only two alternatives of a serial or a parallel transmission. It should be noted that the circuit board disclosed in Block et al can only be connect to a parallel transmission lines of the mother board and the parallel to serial conversion means provided to efficiently communicate with the laser diode module. The link card of Block et al could be connected to serial transmission lines of the computer if serial-to-serial conversion means are provided on the card.

Since serial-to-serial conversion means are well known and commercially available and teachings from Block et al, the ordinary artisan would have found it to be obvious at the time of the invention to replace a parallel-to-serial conversion means of Block et al with serial-to-serial conversion means for the purpose of advantageously connecting the link card to the serial connectors of the computer.

Block et al further fails to disclose a module cap to be inserted into light outlet and inlet opening defined by the first and second frames along a light inlet and outlet direction.

Schaffer et al, in a related art, discloses a receptacle cover (cap) that closes optical devices inlet and outlet openings. Schaffer et al further states that it is well known in the art to attach the cover to receptacle to prevent the entry dust and debris during the assembly process. See lines 20-56 of column 1. Schaffer et al further states that the cover can be modified to cooperate with any convention cavity for seating an

Art Unit: 2874

optical device (such as a photodiode, etc.) in a facing relation to the plug. See lines 5-12 of column 2.

From collective teachings of Schaffer et al and well known techniques, the ordinary artisan would have found it obvious at the time of the invention to provide a cap or shielding means for protecting photo diode modules and laser diode modules from dust and debris and reducing coupling loss that could be imparted by dust and debris.

Block et al fails to disclose the data transmission rate of 1000 Mbits/s or more for laser diode optical signal and photodiode optical signal.

Even the data link card of Block et al has a data transmission rate in excess of 200 Mbits/s, it is capable of transmission at a rate of 1000 Mbits/s providing additional power and components. Such high transmission rate is required in long distance optical communication systems.

The ordinary artisan would have found it to be obvious at the time of the invention to utilize the laser diode module and the photo diode module capable of transmitting at a rate of 1000 Mbits/s or more for the purpose of utilizing the optical fiber link card in long distant optical communication systems.

Block et al, as discussed above, fails to disclose supporting means including a metallic plate.

However, such supporting means is well known in the art and discloses by Sinbashi et al. Sinbashi et al discloses supporting means that provide a high shielding effect and economic suitable for mass production (see page 6 of English Translation provided by applicant).

Thus, from teachings of Sinbashi et al and well known techniques, the ordinary artisan would have found it to be obvious at the time of the invention to provide supporting means as claimed in Block et al for the purpose of providing a high shielding effect and mass production of the modules.

Block et al fails to disclose indication part on the frames.

Such labeling of the products as desired is well known in the art and provides ease to the ordinary skilled artisan in identifying the parts of the product.

From available well known techniques, the ordinary artisan would have found it to be obvious at the time of the invention to provide indication parts in the frame for the purpose of advantageously providing ease in identifying the parts of the module.

As to claims 84-85 and 104-105, Schaffer et al discloses projection parts.

Claims 128-134 are rejected under 35 U.S.C. 103(a) as being unpatentable over Block et al (US 5,039,194).

Block et al discloses an optical fiber link card comprising:

connectors (102, 103) for connection with a mother board;

laser diode electric signal conversion means (130, 131);

a laser diode module (120) for converting the laser diode electric signal to a laser diode optical signal,

a photo diode module (122) for converting a photo diode optical signal to a photo diode electric signal,

photo diode electric signal conversion means for converting the photo diode electric signal to photo diode data (lines 20-32 of column 6);

a circuit board (101) for carrying thereon the connector, the laser diode electric signal conversion means, the laser diode module and the photo diode module; and first and second frames (180, 181) for holding the circuit board, the laser diode module and the photo diode module,

wherein the connectors (102, 103) are construed as a surface mounting type connectors.

The laser diode module and the photo diode module are mounted proximate to a first end of the circuit board and the connector is mounted proximate to a second end of the circuit board that is opposite the first end of the circuit board (See Fig. 1).

Block et al fails to disclose a serial electrical to serial optical conversion means for the laser diode and a serial optical to serial electrical means for the photo diode. However, in lines 25-40 of column 1, Block et al states that such serial-to-serial conversion means are well known in the art and are commercially available. The transmission of data from the mother board to the circuit board can be provided via only two alternatives of a serial or a parallel transmission. It should be noted that the circuit board disclosed in Block et al can only be connect to a parallel transmission lines of the mother board and the parallel to serial conversion means provided to efficiently communicate with the laser diode module. The link card of Block et al could be connected to serial transmission lines of the computer if serial-to-serial conversion means are provided on the card.

Since serial-to-serial conversion means are well known and commercially available and teachings from Block et al, the ordinary artisan would have found it to be

Art Unit: 2874

obvious at the time of the invention to replace a parallel-to-serial conversion means of Block et al with serial-to-serial conversion means for the purpose of advantageously connecting the link card to the serial connectors of the computer.

Block et al fails to disclose the data transmission rate of 1000 Mbits/s or more for laser diode optical signal and photodiode optical signal.

Even the data link card of Block et al has a data transmission rate in excess of 200 Mbits/s, it is capable of transmission at a rate of 1000 Mbits/s providing additional power and components. Such high transmission rate is required in long distance optical communication systems.

The ordinary artisan would have found it to be obvious at the time of the invention to utilize the laser diode module and the photo diode module capable of transmitting at a rate of 1000 Mbits/s or more for the purpose of utilizing the optical fiber link card in long distant optical communication systems.

As to claim 131, 132, and 134, it is inherent that the connector has contacts on the bottom surface of the circuit board since the connector is connected to the laser diode driver, the photo diode driver, and other semiconductor integrated circuits.

As to claim 133, see Fig. 2.

Claims 135-138 are rejected under 35 U.S.C. 103(a) as being unpatentable over Block et al (US 5,039,194) and Sinbashi et al (JP 63-16496).

Block et al, as discussed above, fails to disclose a metallic holder to fix the housing to the computer.

However, such metallic holder is well known in the art and discloses by Sinbashi et al. Sinbashi et al discloses a metallic holder that provide a high shielding effect and economic suitable for mass production (see page 6 of English Translation provided by applicant).

Thus, from teachings of Sinbashi et al and well known techniques, the ordinary artisan would have found it to be obvious at the time of the invention to provide a metallic holder as claimed in Block et al for the purpose of providing a high shielding effect and mass production of the modules.

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. LaBarbera discloses an apparatus including a circuit board connected to a computer device. Arai et al discloses an electronic circuit package including first and second frames. Since the prior art reference, Sinbashi et al (JP 63-16496), used in the above rejections was submitted by applicant in the prior art statement, no copy thereof is provided with this Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hemang Sanghavi whose telephone number is (571) 272-9955. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2874

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Art Unit 2874